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EXAMINER	
VOLPER, THOMAS E	

ART UNIT	PAPER NUMBER
2665	6

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/501,202	KLEIN ET AL.	
	Examiner	Art Unit	
	Thomas Volper	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 14 October 2003 have been fully considered but they are not persuasive.

Regarding claims 1 and 14, Applicants claim that in the Office Action (Section 2, pages 2-3) the Examiner admitted that Higgins fails to disclose operating an inserted node as a pass through. The admission more specifically claimed that Higgins fails to disclose "operating the new node ...to pass through *virtual paths.*" The emphasis is on virtual paths because this is the feature for which the Examiner relies upon Chan. Higgins discloses that after insertion of a new node, the neighbor nodes are returned to open mode and verification is made that the new node and neighbor nodes have open ports (col. 4, lines 35-43). *Thereafter*, the new node can be configured to transmit and receive packets to and from the inter-nodal network (col. 4, lines 44-47). Higgins discloses that in open mode, each of the nodes receives packetized information through port A and transmits packetized information to the other nodes through port B (col. 6, lines 62-65). Based on this definition, the neighbor nodes would be able to transmit to and receive from the new node before that new node was configured to set up its own connections. The Applicants' argument that Chan provides no teaching of allowing an inserted node to pass through before a virtual path has been established is moot, because the feature of pass through is provided by Higgins as described above. Chan is relied upon for the setting up of virtual paths. It is obvious to combine the virtual paths of Chan with Higgins because Higgins discloses the

inter-nodal network may be implemented with ATM (col. 6, lines 8-13), which is well known in the art to use virtual paths.

Regarding claim 12, Applicants' argue that Chan fails to disclose anything with respect to the removal of a failed node from a ring network. The Examiner respectfully disagrees with Applicants' argument. Chan clearly states "The IRC protocol includes the following functions ...adding/deleting a node to/from the ring; notifying other nodes on the ring when either a SONET or an ATM failure has been detected; and notifying other line cards in the node when failure occurs" (col. 6, lines 5-10). It is clear that the protocol Chan discloses includes functions for deleting a node and detecting link failure. Applicants also argue that Chan does not disclose updating network topology information to indicate that a particular node is removed based on a detected fault. However, Chan does in fact meet this limitation by stating "The updating of the LUTs is accomplished so that previously configured VPs are ...eliminated if destined for a deleted SONET node" (col. 9, lines 16-19).

Applicants' arguments fail to place the independent claims 1, 12 and 14 in condition for allowance, thus this action is deemed final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 6-11, 14-16, 19, 20 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins et al. (US 6,370,146) in view of Chan et al. (US 6,301,254).

Regarding claims 1-3, 6, 7, 14-16, 19 and 23-29, Higgins discloses a method of non-disruptive addition of a new node to an inter-nodal network. The system includes a master node that is capable of sending control messages to the other, non-master nodes. This master node represents the ring hub node of the present invention. To add a new node, the master node instructs the two neighbor nodes to operate in loopback mode, and the network portion between the neighbor nodes is physically disconnected. This provides a bypass for traffic on the ring while the new node is then physically connected to the ring (col. 3, lines 51-67). The new node receives instructions from the host while the inter-nodal network is configured to include the new node (col. 4, lines 1-13). Higgins discloses that after insertion of a new node, the neighbor nodes are returned to open mode and verification is made that the new node and neighbor nodes have open ports (col. 4, lines 35-43). After returning to open mode, the new node can be configured to transmit and receive packets to and from the inter-nodal network (col. 4, lines 44-47). Higgins discloses that in open mode, each of the nodes receives packetized information through port A and transmits packetized information to the other nodes through port B (col. 6, lines 62-65). This meets the limitation of passing through traffic before the new node configures its connections, but Higgins fails to expressly disclose passing virtual paths through the new node or communicating these virtual paths to the other nodes on the network. Higgins also fails to disclose providing the new node connection information for all of the virtual paths and virtual circuits on the ring. Higgins also fails to disclose removing a failed node and tearing down virtual connections to that failed node. Chan discloses a method for protecting virtual paths on a

ring network that includes an Intra-Ring Communications (IRC) protocol that includes the function of adding/deleting a node to/from the ring (col. 5, line 66 – col. 6, line12). When a new node is added, Look-Up Tables (LUT's) of each node are updated to reflect the new sequential numbering of the nodes in the ring (col. 8, line 67 – col. 9, line 6). The updating of the LUT's is accomplished so that previously configured VPs are able to bypass the newly added node (col. 9, lines 16-19). The Look-Up Tables (LUTs) in each node are also updated so that previously configured virtual paths (VPs) are eliminated if destined for a deleted node (col. 9, lines 16-19). Chan also discloses a Virtual Path Identifier (VPI) table and a Virtual Circuit Identifier (VCI) table (see Figure 4). These tables are used to make routing decisions at each node. At the time the invention was made, it would have been obvious to a person of ordinary skill to provide the new node with information for all of the virtual paths and virtual circuits on the ring by of the VPI table, VCI table and lookup tables of Chan, and to tear down connections for failed nodes. It would also have been obvious to communicate the virtual path of the new node to the other nodes in the network by updating their respective tables. One of ordinary skill in the art would have been motivated to do this in order to properly route traffic around the ring in accordance with the updated topology, i.e. addition of a new node or removal of a failed node.

Regarding claims 8-10, the teaching provided thus far by Higgins et al. (US 6,370,146) in view of Chan et al. (US 6,301,254) meets all of the limitations of claim 8-10, except for establishing connections to and from the given node over the assigned virtual path and tearing down connections over the assigned virtual path. Chan discloses an ATM network that makes use of Virtual Path Identifier (VPI) table that contains call setup information (see Figure 4). Also, it is well known in the art to establish connections and tear down connections over virtual

paths in an ATM network. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to establish and tear down connections to and from the given node in the system provided by Higgins et al. in view of Chan et al. One of ordinary skill in the art would have been motivated to do this in order to allow calls to be routed through the network.

Regarding claim 11, the teaching provided thus far by Higgins et al. in view of Chan et al. provides all of the limitations of claim 11, except for shaping traffic over the virtual circuits. It is well known in the art of ATM networks to perform traffic shaping per virtual circuits. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include this feature in the system provided by Higgins et al. in view of Chan et al. One of ordinary skill in the art would have been motivated to do this to allow traffic of different classes to pass through the ring while receiving certain guaranteed levels of service.

Regarding claim 20, Higgins discloses that each frame (50) on the inter-nodal network begins with an inter-nodal control word (64), which is used to effect certain control functions between nodes (col. 7, lines 31-49). This control work represents the inter-ring management channel of the present invention.

Regarding claim 22, Higgins discloses a master node that acts like the hub node of the present invention, as described above. Higgins fails to expressly disclose that the master node detects the failure of a failed node. Chan discloses that any node in the ring may detect a failure (col. 9, line 52- col. 10, line 9). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art for the master node of Higgins to detect the failure of a failed node in the system provided by Higgins et al. in view of Chan et al. provided thus far. One of ordinary skill in the art would have been motivated to do this because the master would

be required to know whether to loopback its transmission to a particular node so that information is not lost on the ring.

4. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins et al. (US 6,370,146) in view of Chan et al. (US 6,301,254), as applied to claims 1-3, 6-11, 14-16, 19, 20 and 22-29 above, and further in view of Ballintine et al. (US 6,366,556).

Regarding claims 4 and 17, the teaching of Higgins et al. in view of Chan et al. provides all of the limitations of claims 4 and 17, except for an error checking code. Ballintine discloses an Incoming Error Code (IEC) in the Path Overhead (POH) on a SONET ring (col. 9, lines 1-8). Incoming Error Counts (IEC-1 to IEC-4) keep track of parity error counts to identify incoming failures to a virtual ring path segment (col. 9, lines 17-38). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement this error checking feature in the system provided by the teaching of Higgins et al. in view of Chan et al. One of ordinary skill in the art would have been motivated to do this in order to be sure that the path through the newly inserted node was operating correctly once traffic started to be routed through the new node.

5. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins et al. (US 6,370,146) in view of Chan et al. (US 6,301,254), as applied to claims 1-3, 6-11, 14-16, 19, 20 and 22-29 above, and further in view of Nakata (US 5,500,857).

Regarding claims 5 and 18, the teaching of Higgins et al. in view of Chan et al. provides all of the limitations of claims 5 and 18, except that the given node requests the assignment to the

hub node and the hub node responds with the assignment. Nakata discloses a ring with a plurality of nodes, including a control node (see Figure 2). A node may generate a request to a control node. The control node makes an assignment and informs the requesting node (col. 1, line 58 – col. 2, line36). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art for a node to make a request to a control node, or ring hub node as in the present invention, and receive an assignment therefrom. One of ordinary skill in the art would have been motivated to do this in the system provided by the teaching of Higgins et al. in view of Chan et al. because the master node, or ring hub node, would have information about all of the virtual paths and virtual circuits on the ring and thus be able to make a determination of which assignments may be made to the new node.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. (US 6,301,254).

Regarding claim 12, Chan discloses an Intra-Ring Communications (IRC) protocol that includes the function of deleting a node from the ring and communicating ring failure status to the other nodes in the ring (col. 8, line 49-55). The Look-Up Tables (LUTs) in each node are updated so that previously configure virtual paths (VPs) are eliminated if destined for a deleted node (col. 9, lines 16-19). Chan fails to expressly disclose tearing down virtual circuit connections. However, Chan does disclose maintaining Virtual Circuit Identifier (VCI) tables for maintaining virtual circuit information at each node (see Figure 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to tear down or eliminate virtual circuit connections directed to a failed node. One of ordinary skill in the art

would have been motivated to do this because virtual connections destined to a deleted node would no longer have a path through which to travel.

7. Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. (US 6,301,254), as applied to claim 12, and in further view of Higgins et al. (US 6,370,146).

Regarding claims 13 and 21, the teaching provided by Chan in the previous rejection of claim 12 provides for any node in the ring to detect a failure (col. 9, line 52- col. 10, line 9). Chan also provides all the other limitations of claim 13, except that a hub node determines the node failure and controls the tearing down of virtual circuits and virtual paths. Higgins provides a ring system with a host (4) that may be implemented within a node (col. 6, lines 24-30). The host controls the overall operation of the system and communicates with the nodes to direct call processing functions such as making connections (col. 6, lines 14-23). In this way, the host functions like the ring hub node of the present invention. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art for the host to determine the failure and to perform the tearing down of virtual circuits and virtual path connections. One of ordinary skill in the art would have been motivated to do this because the host would have all of the necessary information to perform the tearing down of connections without having to retrieve this information from other nodes.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper

February 10, 2004

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